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PLANTS INDIGENOUS TO VICTORIA.

VOLUME II.

BY

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PREFACE.

When the late Baron von Mueller began the issue of the *Plants Indigenous to the Colony of Victoria*, it was apparently his intention to give descriptions and full-plate illustrations of all the flowering plants growing wild in Victoria. Twelve ordinary and twelve supplemental plates were issued with the text during the period 1860–1862. The special volume of plates was issued in 1864–65, and continued the ordinary series to Plate 71 and the supplemental series to Plate 18. The text gives an account of the Victorian Flora, commencing with the *Polypetalæ* and continuing as far as the *Leguminosæ*. Only a fragment of the account of this latter order appears to have been prepared and issued. If this were considered as vol. II., part 1, the present issue would be vol. II., part 2, but, as the fragment was not completed, has no plates attached to it, and appears to have almost entirely disappeared, the present issue may be considered as representing vol. II. After the issue of Bentham's *Flora Australiensis* the larger scheme was unfortunately abandoned, and an account of the Victorian Flora was given later in a condensed, and not altogether satisfactory, form, as Mueller's *Key to the System of Victorian Plants*, vol. I. In the small vol. II. attached to the same work, illustrations of rather more than a tenth of the plants belonging to the Victorian Flora were given.

The plants of which illustrations were issued in the larger work appear to have been selected more or less haphazard, preference being apparently given to those species which had been discovered and described by Baron von Mueller himself. The difficulty of completing a work of this scope in one life-time is well shown by the fact that, to illustrate the whole flora on the same scale, at least twenty large volumes would be necessary.

At the time when further issue of the work was stopped, a number of additional plates had not only been prepared but also struck off in readiness for a further issue. At the time, the Herbarium was attached to the Lands Department. During the subsequent transfers of this institution to the Chief Secretary's Department, and finally to the Agricultural Department, these plates, to the number of 500 copies of each, were stored at the National Herbarium, that is, for a total period of over forty years. This series included plates 73–81, 83, 84, 88, 90 to 93. A few incomplete pencil sketches, apparently mainly by R. Graff, were also found, which seem to show that the intention to continue the work further had not been entirely abandoned.

In addition, printed copies of three unissued plates were also found, and these have been included in the present series. Two of these are better figures of plants already issued in the *Plants Indigenous to the Colony of Victoria*. The third is of interest in affording evidence of how *Eucalyptus Stuartiana* and *E. Gunnii* have been confused.

A sufficient number of new plates to complete and round off the second series have been drawn partly from the pencil sketches already mentioned and partly from original ones. This applies to Plates 82, 85, 86, 87, 89, 94, 95, 96, 97, 98. From these materials the present volume has been prepared. It may be regarded as a small contribution towards the desired aim of having a good figure available for reference of every plant indigenous to Victoria. Figures of some of the plants in the present series will also be found in the illustrations to the *Key to the System of Victorian Plants*, but these are necessarily on a restricted scale and omit many essential details. Some of the plates in the *Key* are, in fact, evidently more or less imperfect copies of a few of the unissued plates in this series.

It has not been judged necessary to repeat the technical descriptions of the plants, but reference to the original sources have been given, and the figures, with their descriptions, explain themselves. Data have been added in regard to economical properties wherever such were available, although the present work is not intended to be an economic essay, but merely to record and make available to botanical science illustrations of the structure of some of our native plants.

This issue affords a striking comment upon the stability, or rather the instability, of scientific biological nomenclature. Out of the plates struck off forty years ago, only nine names out of nineteen remain the same to-day. Out of the whole series, no less than twenty names have undergone alteration. One plant has had its name altered no less than five times. Two plants have been re-baptized three times, and seven twice. It is no exaggeration of the truth to say that at the present day the popular names of the plants are more stable than the scientific ones. The work of the Plant Names and Records Committee should place the popular names of the Victorian Flora, before long, on a permanent basis ; and it is to be hoped that the rules adopted at the next quinquennial Botanical Congress will be such as will soon command acquiescence all the world over, and give to the scientific names of plants the required degree of permanency.

Where the name on any of the old plates differs from that now accepted, it is given in brackets over the description of the plate, with the correct name preceding it. At the head of the text the method of indicating synonymy by the sign = is employed.

In conclusion, I have to thank the Hon. George Graham, M.L.A., Minister of Agriculture, for including the present issue among the publications of the Department of Agriculture. Mr. A. T. Sharp, Editor of the *Journal of Agriculture*, has assisted in putting the work through the press and in proof correction.

30th June, 1910. ALFRED J. EWART.

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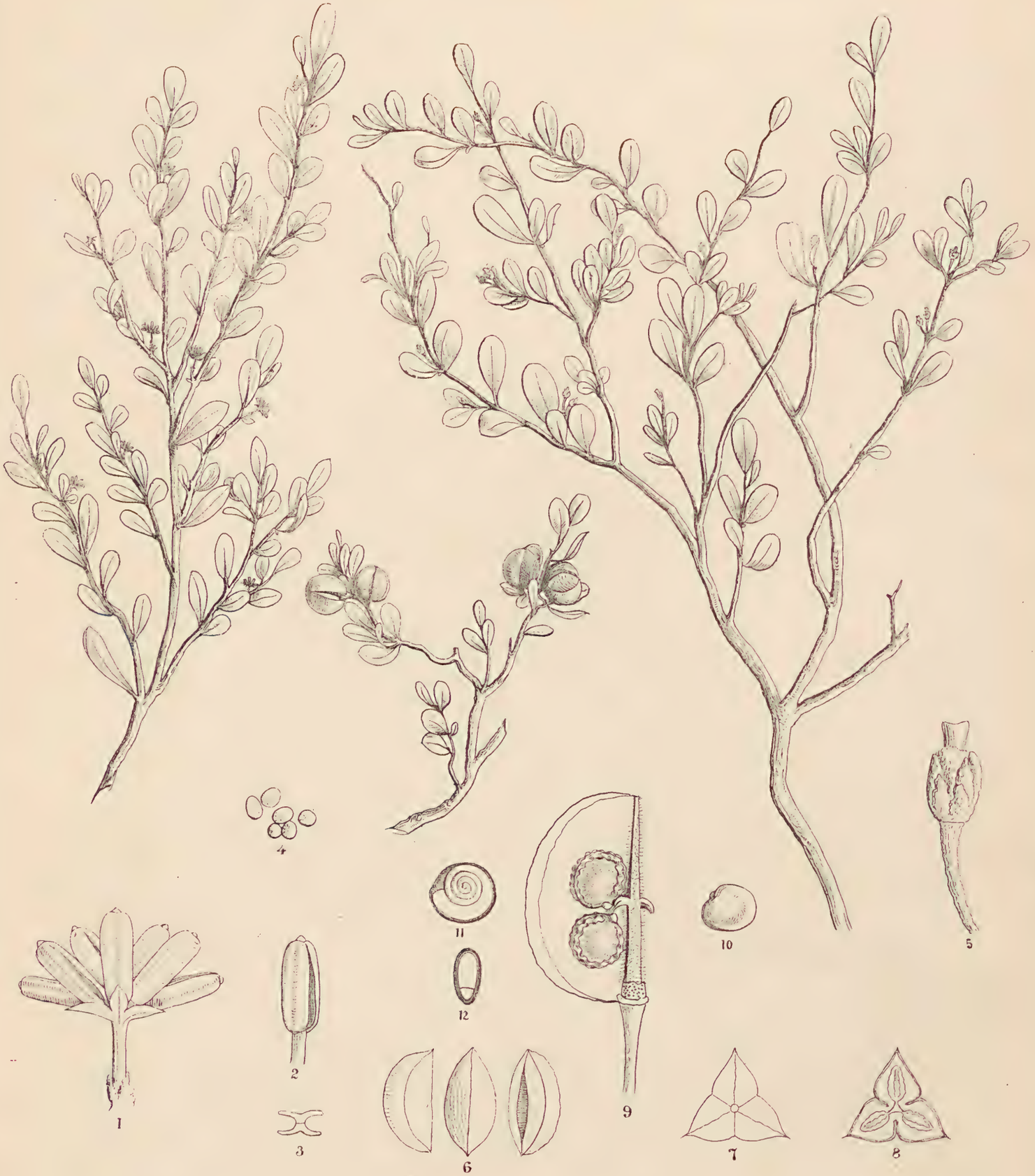


Ludwig Becker del. & lith.

Hamel & Co imp.

Dodonæa bursarifolia. *B&M.*

DODONÆA BURSARIFOLIA, F. v. M.

LESSER HOP BUSH (SAPINDACEÆ).

This figure was evidently prepared and struck off from the same drawing as the one actually issued as Plate V. in the *Plants Indigenous to the Colony of Victoria*. It is included in the present issue in preference to destroying the plates, which have been stored for many years, and because the impression being a line drawing is much better than that of the plate actually issued. Otherwise, the only difference between the two figures is that the present one is marked "Ludwig Becker del. and lith.," whereas that previously issued bears the inscription "Ludwig Becker del., F. Schœnfeld lith., F. Mueller direxit."

For technical descriptions see Mueller, *loc. cit.*, p. 85 and 87, Bentham's *Flora Australiensis*, vol. 1, p. 482.

The plant does not appear to have any special economic value. In Victoria it is restricted to the North-Western District.

PLATE V.

DODONÆA BURSARIFOLIA, F. v. M.

LESSER HOP BUSH.

1. Male flower; 2. Stamen; 3. Transverse section of anther; 4. Pollen; 5. Female flower; 6. Segments of fruit; 7. Capsule from above; 8. Transverse section of fruit; 9. Ripe fruit; 10. Seed; 11 and 12. Sections of seed. (All the figures more or less magnified.)

Ludwig Becker delt & lith.

Mariantus bignoniaceus. F. M.

MARIANTHUS BIGNONIACEUS, F. v. M.

ORANGE BELL CLIMBER (PITTOSPORACEÆ).

The history of this plate is the same as that of the preceding one. The present one, which was printed but not issued, being marked "Ludwig Becker del. and lith.," whereas that actually issued in the *Plants Indigenous to the Colony of Victoria*, which differs in several respects and is much inferior, was inscribed "Ludwig Becker del., F. Schœnfeld lith., F. Mueller direxit."

Full descriptions of the plant are given in Mueller's *Plants Indigenous to the Colony of Victoria*, p. 77, and in Bentham's *Flora Australiensis*, vol. I., p. 118.

It does not appear to have any special economic value, and in Victoria is restricted to the South-Western District.

PLATE X.

MARIANTHUS BIGNONIACEUS, F. v. M.

ORANGE BELL CLIMBER.

1. Corolla; 2. Corolla cut open; 3. Flower cut open; 4. Face and back view of anthers; 5. Pollen grains; 6. Carpel; 7. Stigma and portion of same; 8. Capsule; 9. Dehisced capsule; 10. Fruit in vertical section; 11. The same in transverse section; 12. Seeds, natural size; 13. The same magnified; 14 and 15. Seed in vertical and transverse section.

F Austen delt et lith

Baron von Mueller direxit

C Troedel & Co imp

E. ovata, as " **Eucalyptus Stuartiana.** *FvM.*

EUCALYPTUS STUARTIANA, F. v. M.=E. GUNNII, Hook. fil. (Partim.).

Cider Gum (Myrtaceæ.)

The name *E. Stuartiana* was given by Mueller to several plants belonging to species of prior date, and he seems never to have been quite sure of the boundaries of his species, and to have changed his views from time to time. Mr. Maiden has restricted the name to its proper limits, and has brought forward evidence to show that the name was sometimes even applied by Mueller to undoubted species of *E. Gunnii*. (*Proc. Linn. Soc. of New South Wales*, 1901, pp. 547, 556, 561.) Additional evidence is afforded by the present figure, which was prepared and struck off for the *Eucalyptographia*, but differs widely from the plate actually issued. The present plate tallies closely with that of *E. Gunnii*. The anther differs, but it is also unlike those figured for *E. Stuartiana* type and for *E. pulverulenta*, with which species *E. Stuartiana* was also confused by Mueller.

A description is given in Bentham's *Flora Australiensis*, vol. III., p. 243.

In Mueller's *Census*, under *E. Stuartiana*, reference is made to *Fragmenta*, II., p. 62. Here *E. Stuartiana* is given as a synonym to *E. Gunnii*, and the present figure evidently represents the same view.

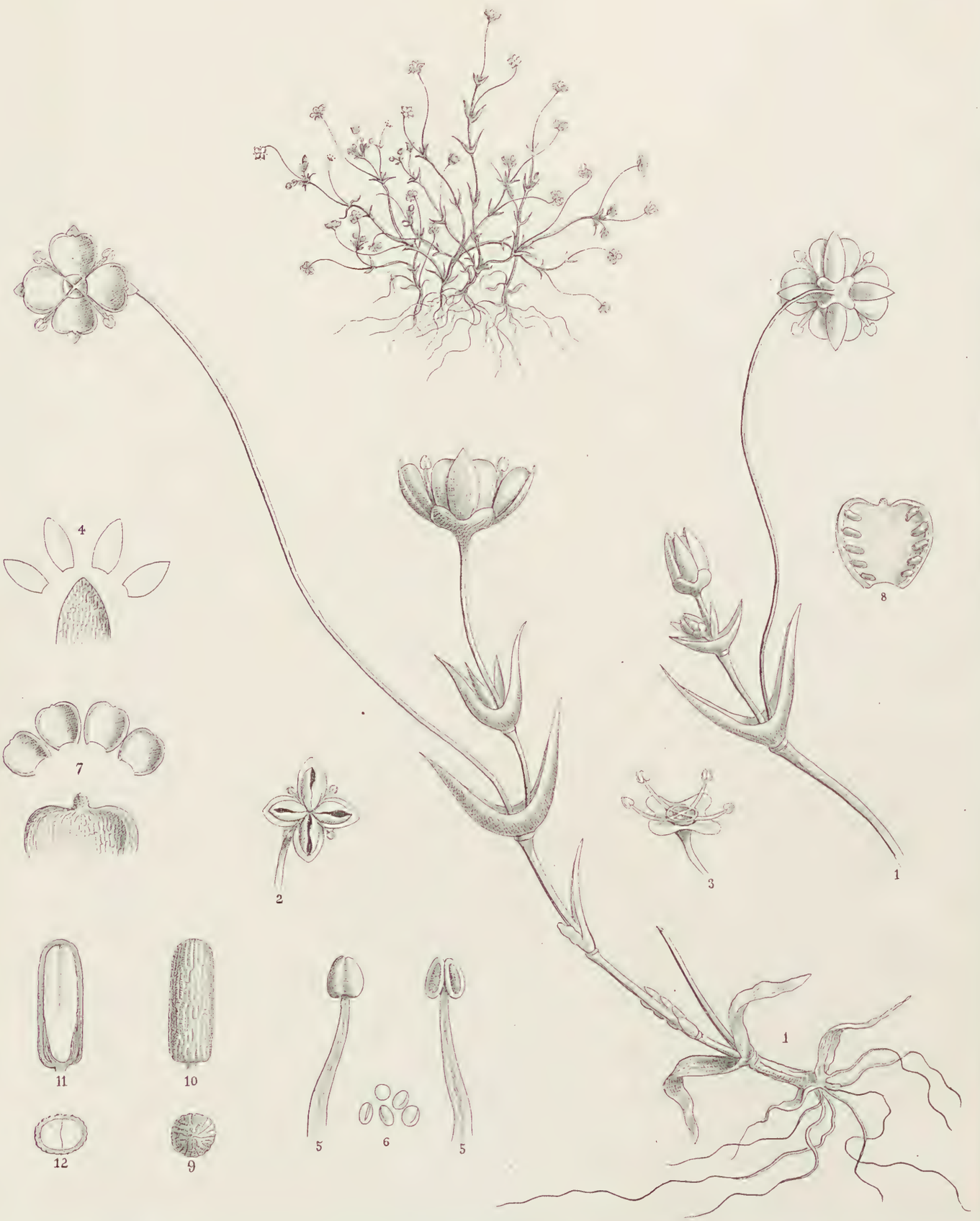
E. Gunnii produces kino, the leaves are eaten by stock, the sap has been used for making cider—hence "cider gum"—the bark and leaves contain tannin. The wood is hard, but not very durable. It makes good charcoal. The wood of *E. Stuartiana* is pale and dull, burns badly, and is not very durable or strong.

PLATE XV.

EUCALYPTUS GUNNII, Hook. Fil. (E. STUARTIANA, F. v. M., Partim.).

Cider Gum.

1. Flower bud; 2. Flower bud in vertical section; 3. Anther from front; 4. Style; 5. Back of anther; 6. Fruit, 7. in vertical, and 8. in transverse section; 9 and 10. Seed; 11 and 12. Embryos.



Ludwig Becker del & lith.

J. Carr imp.

Tillaea purpurata. J. Hook.

Crassula purpurata

TILLÆA PURPURATA, J. Hook.

Purple Tillæa (Crassulaceæ).

See J. Hook, *London Journal of Botany*, VI., p. 472 : Bentham's *Flora Australiensis* II., p. 451.

As in the case of the preceding plate, the present one is a better unissued reproduction of the same figures as in Plate XIX. of Mueller's *Plants Indigenous to the Colony of Victoria* (Lithograms). The latter is marked "Ludwig Becker del., F. Schœnfeld lith., F. Mueller direxit. De Gruchy & Lee, imp." The hitherto unissued plate is marked "Ludwig Becker del. and lith., J. Carr, imp." As in the other two plates, the first figure is a line engraving, whereas the second one, which was the first issued, is a crayon reproduction with the position of the figures reversed.

PLATE XIX.

TILLÆA PURPURATA, J. Hook.

Purple Tillæa.

1. Plant and branch magnified; 2. Expanded flower; 3. Flower with the carpels cut away; 4. Petals; 5. Stamens from back and front; 6. Pollen grains; 7. Carpels split open; 8. The same howing ovules; 9. Seed from above; 10. Side view of seed; 11. Vertical section of a seed; 12. Transverse sections.

F. Schenfeld. del. & lith.

F. Mueller Jun. ext.

De Gruchy & Leigh imp.

Orites lancifolia *F.M.*

ORITES LANCIFOLIA, F. v. M.

Veined or Lance-leaved Orites* (Proteaceæ).

The plant was first described in the *Transactions of the Philosophical Society of Victoria*, with the caution that it might prove to be identical with *O. Milligani*. Meissner, in De Candollés *Prodromus*, XIV., p. 423, makes it a variety of *O. excelsa*, but Bentham agrees with Mueller in making it a distinct species. In the *Fragmenta*, V., p. 153, and VI., p. 223, Mueller emphasizes the differences between it and *O. excelsa* and *O. diversifolia*. In the *Fragmenta*, VII., p. 133, a line of reference occurs as follows :—"*Orites lancifolia* is figured in the *Plants of Victoria*, plate 72." This is the plate in question, now published for the first time.

The genus *Orites* is a small one, including, with the Queensland *O. fragrans* of Bailey, eight species in all, of which seven are confined to Australia. One species (*O. myrtoidea*, Benth. and Hook), grows on the mountains of Chili, and resembles somewhat the Tasmanian *O. diversifolia*. If these two species are really distinct, this is one of the few genera in which all the original names stand without alteration, and in which there are no synonyms. The genus is a small one, however, in Australia being confined to the Eastern States, and the species are for the most part of restricted range.

Orites lancifolia is a rather handsome shrub which might be grown as an alpine plant in gardens. On the Victorian Alps it grows at elevations of over 5,000 feet, and also at Kiandra and Mount Kosciusko in New South Wales. The plant has no known economic properties, and is too small to yield useful timber.

* Adopted as the popular name by the Plant Names Committee.

PLATE LXXII.

ORITES LANCIFOLIA, F. v. M.

Lance-leaved Orites.

1. Terminal leaves and inflorescence bud ; 2. The latter expanding ; 3. Single bract scale ; 4. Young flower ; 5. The same, older ; 6. Expanded flower, showing perianth segments with adherent stamens, ovary, and style ; 7. Single segment of the perianth with its adherent stamen ; 8. Pollen grains ; 9. Carpel ; 10. Fruit, back and side view ; 11. Fruit open to show winged seed (on left) ; 12. Seed, side and back view ; 13. Seed, cut transversely ; 14. Embryo.

F. Schoenbein del. et lith.

F. Mueller direxit.

Lith. Anst. v. J. G. Bach in Wien.

Telopea oreades F. M.

TELOPEA OREADES, F. v. M.

The Gippsland Waratah (Proteaceæ).

The original description is given in the 18*th Annual Report* by Mueller (1861), *Sixth Systematic Index of Victorian Plants*, p. 18, and in the *Fragmenta*, vol. II., p. 170. See also Bentham's *Flora Australiensis*, vol. V., p. 534.

It is a tree sometimes reaching a height of 40 feet. Its elastic wood is of use for pick handles when properly seasoned, and the pliable young shoots have been used for making baskets.

PLATE LXXIII.

TELOPEA OREADES, F. v. M.

The Gippsland Waratah.

1. Flower; 2 and 3. The same open; 4 and 5. Flower showing the positions of the style, stigma, and stamens; 6. Perianth lobe and stamen; 7. Pollen; 8. Carpel and gland; 9. Gland isolated; 10. Fruit commencing to dehisce, on the right a fruit fully open; 11. Seed; 12. The seed with wing attached 13. Seed cut transversely; 14. Embryo; 15. The same with one cotyledon removed.

F. Schonfeld del. & lith. F. Mueller direxx. De Crusly & Leigh. Imp

Hakea rostrata *F.M.*

HAKEA ROSTRATA, F. v. M.

Beaked Hakea (Proteaceæ).

The original description is given in F. Mueller's *First General Report*, 17, and in *Linnæa* 26, p. 359 (1853–5). Seeal so Bentham's *Flora Australiensis*, vol. V., p. 508.

The plant is a shrub a few feet high, usually occurring on mountains, but extending down to flats near the sea coast. It is too small to yield any timber, and does not appear to have any special economic value.

PLATE LXXIV.

HAKEA ROSTRATA, F. v. M.

Beaked Hakea.

1. Buds; 2, 3, 4, and 5. Development of flower from bud; 6. Cluster of opening flowers; 7. Flower split open; 8. Stamen with segment of perianth; 9. Stamen removed; 10. Pollen grains; 11. Carpel and stigma; Pedicel with gland; 13. Fruit; 14. Fruit split open; 15. Seed with wing, face and side view; 16. Embryo; 17 and 18. Embryo cut vertically and transversely.

F. Schonfeld. del & lith

F. Mueller direxit

De Gruchy & Leigh imp

B. marginata as **Banksia Australis** *R. Br.*

BANKSIA MARGINATA, Cav.

Silvery Banksia (Proteaceæ).

(Frequently erroneously termed Honeysuckle, or Heoak).

The true Honeysuckle (*Lonicera*) is a common garden shrub or climber so entirely different as to render the use of the same name for Banksia highly inadvisable. It is fortunately equally well known by its shorter and more euphonious scientific name of Banksia.

The name *B. Australis* was given to it by R. Brown, but Cavanille's name has priority (*Anal. Hist. Nat.* T. 13, I. p. 227, 1800). See also Bentham's *Flora Australiensis*, vol. V., p. 553 ; and Mueller's *Fragmenta*, VII., pp. 55, 133 ; X., p. 90.

This is a tree rarely exceeding 20 feet high. The wood, when fresh, is very soft, and warps in drying. When fully dry, it is fairly hard though light, and is capable of a fine polish. Apart from cabinet work, it has no appreciable economic value, though, where abundant, it might be of some use for wood distillation.

— ——

PLATE LXXV.

BANKSIA MARGINATA, Cav. (B. AUSTRALIS, R. Br.)

Silvery Banksia.

1. Forms of leaf ; 2. Bud ; 3, 4, 5, and 6. Development of flower ; 7. Unopened flower in section ; 8. Stamen ; 9. Pollen ; 10. Stigma ; 11. Portion of spike with flowers ; 12. Vertical section of flowering spike ; 13. Transverse section of same ; 14–16. Single fruit capsule in side, face, and end view ; 17. Seed in face and side view ; 18. Seed without wing ; 19 and 20. Embryo.

F. Schoenfeld del & Lith. F. Mueller direxit. De Gruchy & Leigh imp

Pimelea axiflora. *F.M*

PIMELEA AXIFLORA, F. v. M.

CLUSTERED PIMELEA, OR TOUGH RICE FLOWER* (THYMELEÆ).

The original description is given in Mueller's *First General Report*, 17, 1853. See also Bentham's *Flora Australiensis* vol. VI., p. 26; Mueller's *Fragmenta*, vol. VII., p. 7.

The plant is found in the south, north-east, and east of Victoria, extending also to New South Wales and Tasmania. It usually occurs on mountain ranges, but also extends along valleys and river banks to the sea coast. It is a slender shrub a few feet high, the bark yielding a fibre of considerable strength, used by the aborigines for various purposes (nets, cordage, &c.).

* Adopted as the popular name by the Plant Names Committee.

PLATE LXXVI.

PIMELEA AXIFLORA, F. v. M.

TOUGH RICE FLOWER.

1. Leaf; 2, 3, 4, 5. Development of flower; 6. Insertion of flower; 7. Male flower cut open, with unfruitful carpel; 8. Stamens in face, back, and side view; 9. Face and side view of dehiscing anthers; 10. Pollen grains; 11. Carpel; 12. Female flower; 13 and 14. Fruit in face and side view; 15. Seed; 16 and 17. Fruit in vertical and transverse section; 18. Embryo.

VARIETY ALPINA. F. v. M.

19. Male flower cut open. This variety with short broad leaves and condensed habit, apparently so different to the type form, is connected with it by various intermediates. One form has the perianth glabrous outside, and in some specimens the corolla of the male flower is quite as long as in the type.

F.Schoenfeld del & Lith.

F.Mueller direxit

Ferd. Grashoff & Leop. Schmidt

Hemichroa pentandra. *R.Br.*

NAT. HERBARIUM MELBOURNE

HEMICHROA PENTANDRA, R. Br.

Trailing Joint-weed* or Creeping Mud Wort (Chenopodiaceæ).

The original description is in Brown's *Prodromus Novæ Hollandiæ*, p. 409. See also Bentham's *Flora Australiensis*, vol. V., p. 211, and Mueller's *Fragmenta*, VI., p. 234. The name was changed to *Polycnemum pentandrum* by Mueller, and the whole genus transferred to the *Amarantaceæ*, but neither change has been accepted.

Besides being spread over the whole of Australia, the plant occurs in the south-west, south, and east of Victoria, mainly in muddy places on or near the sea shore, or salt swamps. It has apparently a very slight grazing value in such situations owing to its fleshy leaves, but is otherwise without economic value.

* Adopted as the popular name by the Plant Names Committee.

PLATE LXXVII.

HEMICHROA PENTANDRA, R. Br.

Trailing Joint Weed.

1, 2, and 3. Development of flower; 4. Perianth segments; 5. Prophylls; 6. Stamen, back and side view; 7. Staminode; 8. Flower with perianth removed; 9. Ovary, cut open to show ovule; 10. Fruit; 11. Seed; 12. Fruit and seed in section, the cotyledons showing on the right, the radicle on the left; 13. Seed, dissected from side to show embryo; 14. Embryo.

F. Schoenfeld del & litn. F. Mueller direxit. H. C. De Crespigny & Co? Lith?

Ptilotus obovatus a? **Trichinium atriplicifolium.** *A. C.*

TRICHINIUM ATRIPLICIFOLIUM, A. Cunn.=T. OBOVATUM, Gaud.

Silver Tails (Amarantaceæ).

The name was also changed by Mueller to *Ptilotus obovatus*. See Mueller's *Fragmenta*, vol. VI., p. 228; vol. XI., p. 27; and Bentham's *Flora Australiensis*, vol. V., p. 220. In Engler's *Pflanzen Familien* the genus *Trichinium* is combined with *Ptilotus* as suggested by Mueller, whereas Sprengel adopts the name *Trichinium* for the whole series, since both names are of the same date, and the latter includes the larger number of species. There seems little to separate the two genera, but until a final decision can be made as to which name to adopt for the whole series, it appears best to retain Bentham's arrangement of the species in two distinct genera.

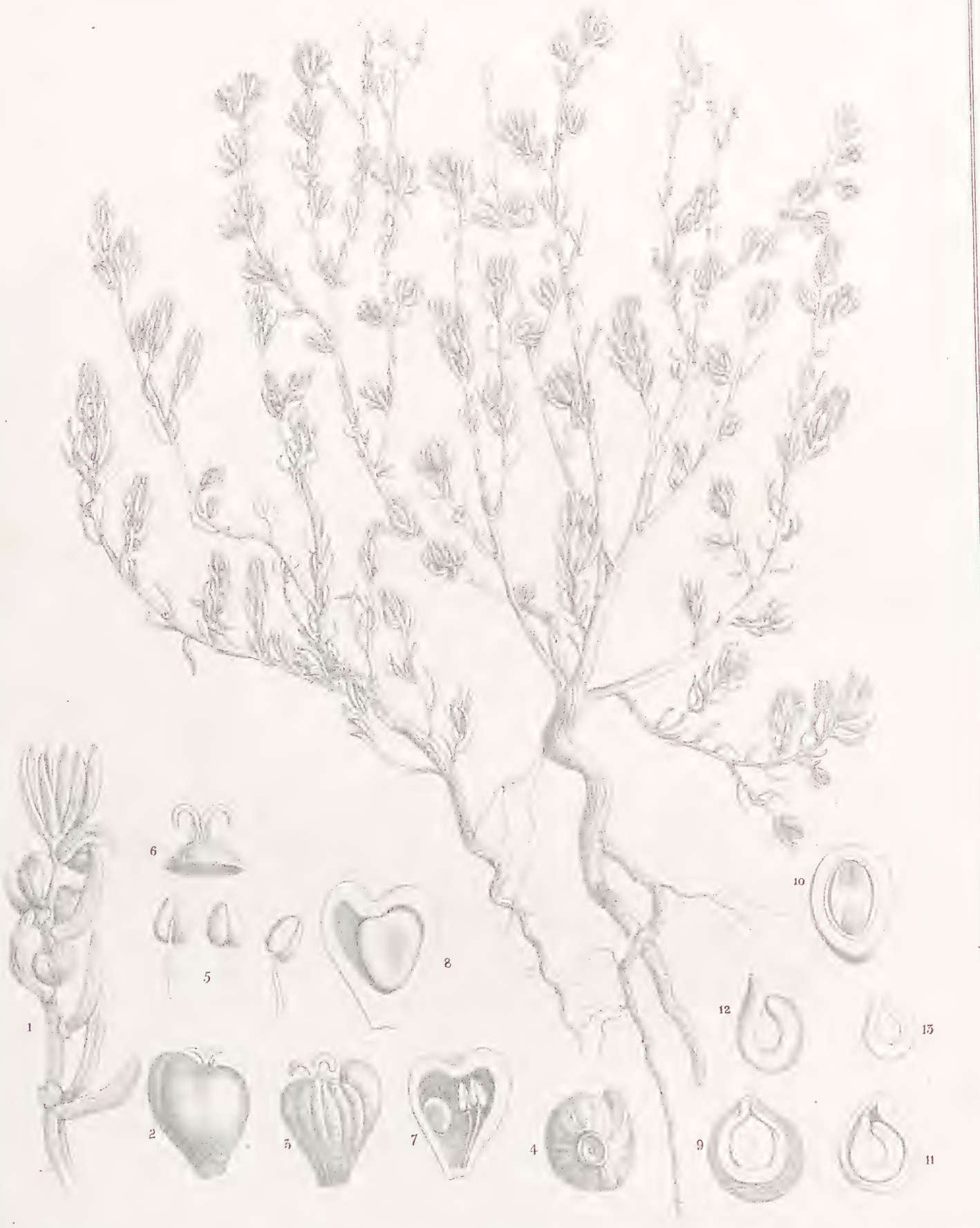
The plant is an undershrub 1 to 3 feet high, found over the whole of Australia, especially in dry regions, but only occurring in the north-west of Victoria. It has a slight fodder value, but has apparently no other economic use.

PLATE LXXVIII.

TRICHINIUM OBOVATUM, Gaud. (T. ATRIPLICIFOLIUM, A. Cunn.)

Silver Tails.

1 and 2, Hairs; 3. Bracts; 4, 5, 6, and 7. Development of flowers; 8. Perianth segments; 9. Flower with perianth removed; 10. Fertile stamens; 11. Carpel; 12. Fruit; 13. Ovule in front, back, and side view; 14. Seed; 15 and 16. Seed in section; 17. Embryo.



F. Schoenfeld del & lith. F. Mueller direxit. Hügel & Co. imp.

Threlkeldia salsuginosa

" Osteocarpum salsuginosum " F.M.

OSTEOCARPUM SALSUGINOSUM, F. v. M.=THRELKELDIA SALSUGINOSUM, Benth.

Juicy Salt Bush (Chenopodiaceæ).

See Mueller's *2nd General Report* 15, 1855; Bentham's *Flora Australiensis*, vol. V., p. 197; *Fragmenta*, vol. VII., p. 120; vol. X., p. 92; XI., p. 27; XII., p. 13. In the last *Census* Mueller transferred the species to *Bassia*; in 1871 he agreed with Bentham that it might belong to *Threlkeldia*; in a previous *Census* united it with *Babbagia*; and in the *Salsolaceous Plants* placed it under *Osteospermum* (1889). Volkens, in Engler's *Pflanzenreich*, combined the species with the genus *Babbagia*, and gave to the whole the name of *Osteocarpum*. Apart from the fact that the change can hardly be given on Mueller's authority, and that the existence of a genus *Osteocarpum* (*Solanaceæ*) makes the revival of the name *Osteocarpum* (given by Bentham as *Osteocarpus*) objectionable, it is always better, if possible, in combining genera to adopt the name including most species. In this case, as the fruit is not winged as in the species of *Babbagia*, but has merely a slight protrusion on one side, it seems better to follow Bentham and use the genus *Threlkeldia* to include these forms of doubtful affinity.

The plant occurs in the north-west of Victoria, but does not appear to have any economic importance beyond a certain grazing value for sheep.

A figure by Graff is given in the *Salsolaceous Plants*.

PLATE LXXIX.

THRELKELDIA SALSUGINOSA, Benth. (1870). (OSTEOCARPUM SALSUGINOSUM, F. v. M.)

Juicy Salt Bush.

1. Flowering branch; 2 and 3. Young and older flower; 4. Basal view of flower; 5. Stamens; 6. Apex of flowers with styles, showing the bases of the staminal filaments (usually five); 7. Section of young ovary (the bodies resembling stamens on the right are incorrect and are to be deleted); 8 and 9. Section of fruit; 10. Transverse section of fruit and seed; 11. Embryo in section within fruit; 12. the same entire; and 13. In section.

F. Schönfeld del. & lith. F. Mueller direxit De Gruchy & Leigh imp

Muehlenbeckia dictina as Muehlenbeckia polygonoides F.M.

MUEHLENBECKIA POLYGONOIDES, F. v. M. (*Fragmenta*, V., p. 73)= M. STENOPHYLLA, F. v. M. (*Fragmenta*, I., p. 138).

ERECT LIGNUM (POLYGONACEÆ).

This plant was also described by Mueller as *Polygonum diclinum* in Hooker's *Kew Journal* VIII., 203; and as *P. angustissimum* in the *Fragmenta*, V., 92. Specimens labelled *Polygonum diclinum* were included under both *M. polygonoides* and *M. stenophylla* in the Herbarium. Bentham recognised the similarity of the two species, but wrongly discarded the earlier name. Mueller maintained the two species in the *Census*, although he recognised a broad-leaved variety of *M.* "*polygonoides*" differing more widely from the type of that species than the most widely divergent specimen of *M. stenophylla.*

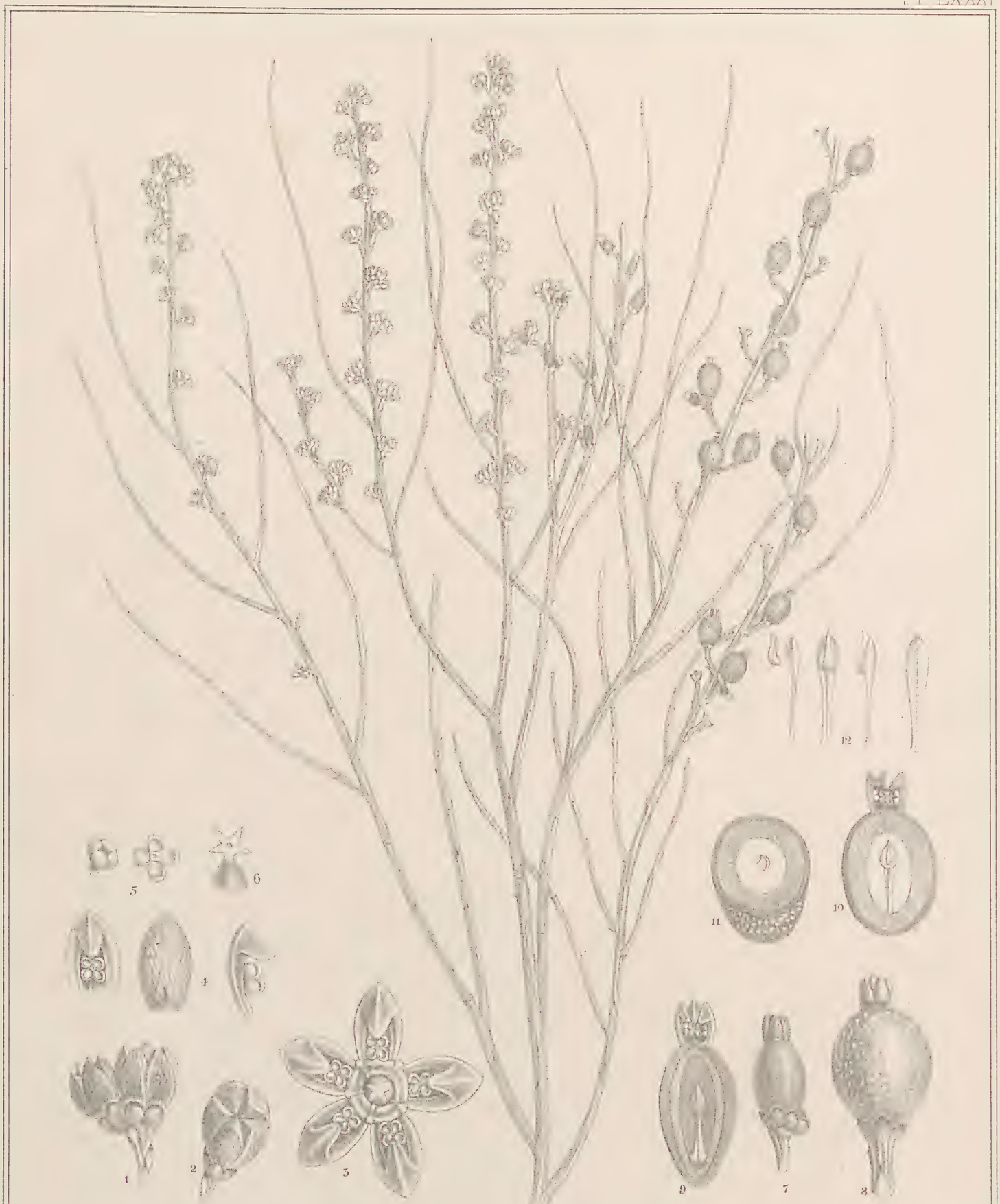
The plant has no recognised economic value. It is mainly restricted to the north of Victoria, but extends as far to the south as the Wimmera. The name "Lignum" is a mere corruption of "Polygonum," but is in too common use to be discarded.

PLATE LXXX.

MUEHLENBECKIA STENOPHYLLA, F. v. M. (M. POLYGONOIDES, F. v. M.)

ERECT LIGNUM.

1. Flowering branch; 2. Axillary cluster of flowers; 3. Flower unopened; 4. Flower open seen from above (female with rudimentary stamens); 5. Fertile male flower; 6. Stamens; 7. Pollen; 8. Rudimentary stamens; 9. Ovary with styles and stigmas; 10. Developing fruit; 11 and 12. Ripe fruit; 13. Fruit in transverse section; 14. Fruit in vertical section; 15. Embryo.



F. Schönfeld del. & lith. F. Mueller direxit. De Gruchy & Leigh imp

Choretrum glomeratum, as "Choretrum chrysanthum" F.M.

CHORETRUM CHRYSANTHUM, F. v. M. = C. GLOMERATUM, R. Br.

Common Sour Bush (Santalaceæ).

See Bentham's *Flora Australiensis*, VI., p. 218 ; R. Brown, *Prodromus Novæ Hollandiæ*, 1810, p. 354 ; Mueller, *Trans. Phil. Soc. Victoria*, 1, 23, 1854. Mueller's specimens differ from R. Brown's species solely in the slightly larger and yellower flowers, differences barely sufficient for the recognition of a variety. In Mueller's *Key*, I., p. 288, the descriptions of the two species are identical, with the exception of the colour of the flowers.

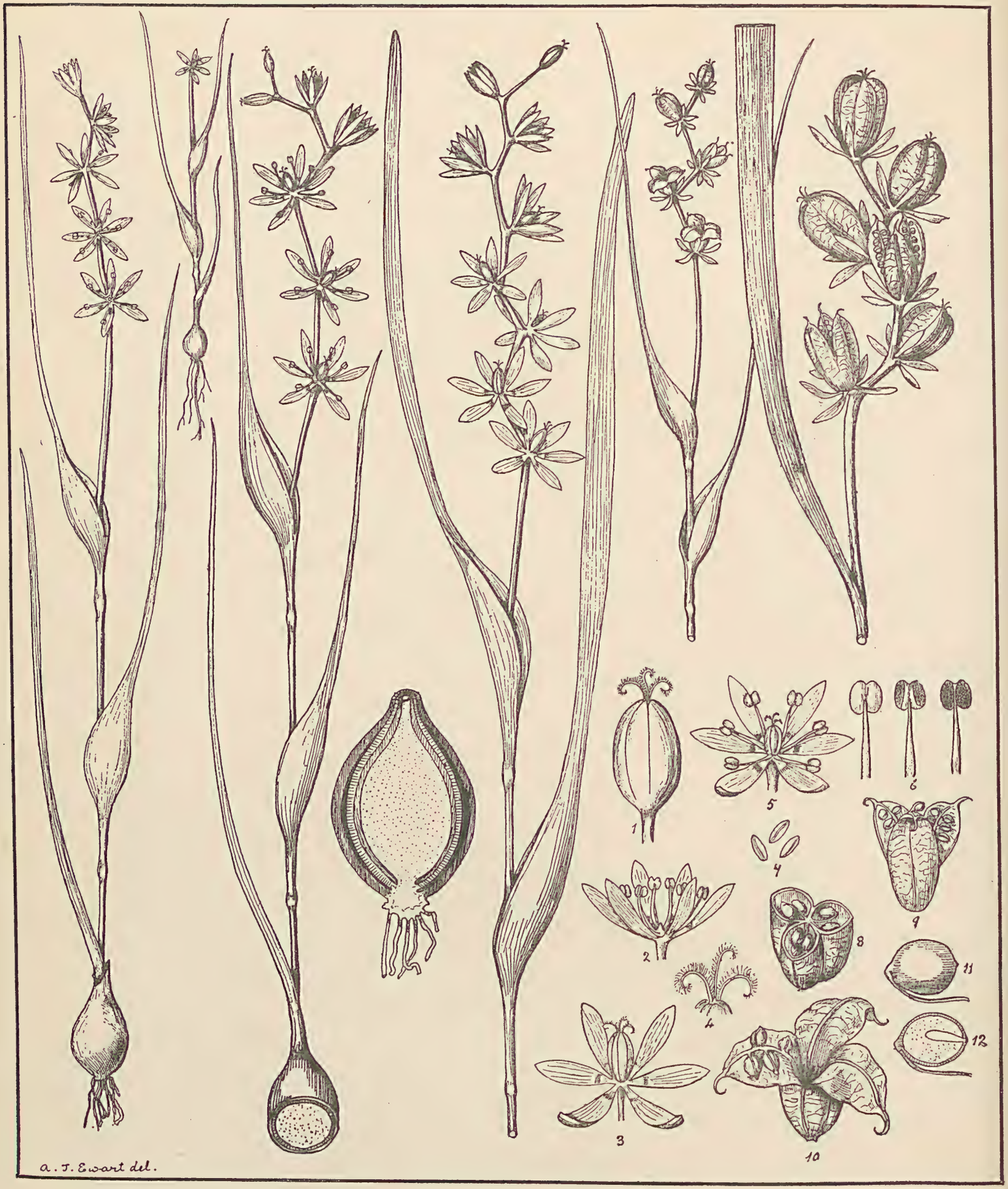
The species is restricted to the north-west of Victoria, and the genus is endemic to Australia, being represented by four species, none of which appears to have any recognised economic value.

PLATE LXXXI.

CHORETRUM GLOMERATUM, R. Br. (C. CHRYSANTHUM, F. v. M.)

Common Sour Bush.

1. Cluster of flowers ; 2. Single unopened flower ; 3. Open expanded flower seen from above ; 4. Perianth segments in front, back, and side view ; 5. Anthers ; 6. Style and stigma ; 7. Young fruit ; 8. Mature fruit ; 9. Developing fruit in vertical section ; 10. Ripe fruit in vertical section ; 11. Transverse section of fruit ; 12. Embryo in front, side, and back view.



Anguillaria dioica, *R. Br.*

ANGUILLARIA DIOICA, R. Br.

Early Nancy (Liliaceæ).

This plant was first described in Robert Brown's *Prodromus Novæ Hollandiæ*, p. 273. F. Mueller changed the name to *Anguillaria australis*, and included under this head, *A. dioica*, R. Br.; *A. biglandulosa*, R. Br.; *A. monantha*, Endl.; and *Melanthium Brownii*, Schlecht. In the *Fragmenta*, X., p. 119, Mueller says :—"I now transfer this species to Wurmbsea under the name *Wurmbsea dioica.*" No reason is given, and the name "Wurmbsea" is repeated in the last *Census*, although the accepted spelling for this genus is *Wurmbea.* The *Kew Index* gives both *Anguillaria dioica*, R. Br. and *Wurmbea dioica*, F. v. M. as valid species. In Engler's *Pflanzen Familien*, II., 5, p. 28, and in Torrey and Harms' *Genera Siphonogamarum*, p. 61, the species is evidently retained under *Anguillaria*, thus following Bentham. It is, therefore, distinctly unfortunate that this common plant, well known as an early flowering spring plant, should be widely known popularly in Victoria and Tasmania as Wurmbea.

The genus *Anguillaria* differs from *Wurmbea* in having the perianth segments free, the stamens flattened at the base, and the capsule more or less triangular, and splitting along the dorsal sutures. The genus contains two Australian species and possibly two Asiatic ones. Of the Australian species one is confined to West Australia. The other in the extended form given to it by Bentham (*Flora Australiensis*, VII., p. 29) is native to all the States of Australia, and is generally diffused throughout Victoria.

The tubers of one of the Asiatic species are said to be edible, and so far as is known none of the species are poisonous. The present species does not, however, appear to have any recognised economic value.

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PLATE LXXXII.

ANGUILLARIA DIOICA, R. Br.

Early Nancy.

1. Unexpanded female flower with the stigmas protruding ; 2. An expanded male flower ; 3. An expanded female flower ; 4. Stigmas ; 5. An open hermaphrodite flower; 6. Stamens ; 7. Pollen grains; 8. Ripe fruit in transverse section ; 9 and 10. Dehiscing fruits ; 11. Seed ; 12. Seed in section.

F. Schoenfeld del. & lith. F. Mueller direxit H.G.De Gruchy & Co. imp.

Pachycornia triandra as Salicornia robusta F.M.

SALICORNIA ROBUSTA, F. v. M. = PACHYCORNIA ROBUSTA, Hook., Fil.

Desert Crab Grass (Chenopodiaceæ).

In Bentham's *Flora Australiensis*, V., p. 202, the reference is given as follows:—"*Fragmenta*, VI., p. 251, and *Plants of Victoria*, t. 83, ined. (F. Mueller)." In a foot-note Bentham adds—"I have not yet received the plate above referred to." Forty years have elapsed since this note was written, and both Bentham and Mueller have passed away.

The plant was first described by Mueller as *Arthrocnemum triandrum*, F. v. M. (*Fragmenta*, I., 139). The name was changed to *Salicornia robusta* (*Fragmenta*, VI., p. 251), reference being made to plate LXXXIII. of the work on the Plants of Victoria, which plate is now published for the first time. The name *Salicornia robustu* is, of course, a misprint for *S. robusta*. The reference to the plate is repeated in the *Fragmenta*, VII., p. 14, with some notes evidently derived from the figures. The plant is more shrubby than most *Salicornias*, and occurs in saline desert regions, where it has a slight fodder value in time of scarcity. It occurs only in the north-west of Victoria, but is found in every part of Australia excepting Queensland and Tasmania.

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PLATE LXXXIII.

PACHYCORNIA ROBUSTA, Hook., fil. (SALICORNIA ROBUSTA, F. v. M.)

Desert Crab Grass.

1. Leaf scales; 2. Flowering spike; 3. Cluster of three flowers in face and side view; 4. Anthers; 5. Stamen; 6. Carpel; 7. Pollen; 8. Three united flowers, opened, showing two of the stamens (the central flower has one carpel and one stamen, the two lateral flowers one stamen each); 9 and 10. Seed; 11 and 12. Sections of same with single and double embryo; 13 and 14. Embryo.

T. Schonfeld del. & lith. F. Mueller direxit. H.G.De Gruchy & Co. imp.

Kochia sedifolia, *F. M.*

KOCHIA SEDIFOLIA, F. v. M.

DENSE BLUE-BUSH (CHENOPODIACEÆ).

See Mueller in *Trans. Vict. Inst.*, I., p. 134, 1855 ; Bentham's *Flora Australiensis*, V., 187 ; *Fragmenta*, VII., p. 12 ; VIII., p. 37 ; XII., p. 15. In the third of these references Mueller suggests that *K. sedifolia* may not prove specifically distinct from *K. villosa*, Lindl. Bentham makes the same suggestion, but Hooker (*Kew Journal*, VIII., p. 205) maintains the species as distinct. It has, however, the perianth and fruit of *K. villosa*, although the leaves are shorter and broader, and more cottony. There may be two or three styles, as in *K. villosa*, but the general external habit is so constant and distinct as to render it advisable to maintain it as a separate species, under the name by which it has so long been known.

The plant is restricted to the north-west of Victoria, but occurs in every State of the Commonwealth, excepting Tasmania. It has a certain fodder value for dry districts in time of scarcity, though apt to produce felted masses obstructing the alimentary canals of sheep grazing solely upon it or upon other salt bushes. Possibly on this account it is sometimes said to be dangerous to sheep.

PLATE LXXXIV.

KOCHIA SEDIFOLIA, F. v. M.

DENSE BLUE-BUSH.

1. Flowering branch ; 2, 3, and 4. Flower and subtending leaves ; 5, 6, and 7. Developing fruit ; 8. Stamens ; 9. Carpel ; 10. Seed ; 11. Section of flower, with stamens only ; 12. Section of flower, with carpel only ; 13, Embryo.

Scirpus polystachyus, *F. v. M.*

SCIRPUS POLYSTACHYUS, F. v. M.

SPICATE CLUB-RUSH (CYPERACEÆ).

The plant was first described by Mueller in the *Transactions of the Philosophical Society of Victoria*, vol. I., p. 108 ; and later in Hooker's *Kew Journal*, vol. VIII., p. 333. In the *Fragmenta*, IX., p. 9, Mueller points out the differences between it and the *S. radicans* of Schkuhr, to which it is closely allied, in spite of the wide geographic separation between the two species. See also Bentham's *Flora Australiensis*, vol. VII., pp. 335, 336, where a full technical description is given.

The plant grows in wet or swampy localities, or by the sides of rivers and lakes. It has no recognised economic value, and, though not poisonous, is useless for fodder, being harsh, tough, and fibrous. It does not appear possible to extract a useful fibre from it.

The species is only known from Victoria and New South Wales, and in Victoria it is only recorded from the north-east and east (Lake Omeo, Murray, Mitta Mitta, and Snowy Rivers).

PLATE LXXXV.

SCIRPUS POLYSTACHYUS, F. v. M.

SPICATE CLUB-RUSH.

1. Flowering spikelet ; 2. Single flower, showing the hypogynous bristles, six or more in number ; 3. Stamens and gynæcium ; 4. Fruit ; 5. Fruit in transverse section ; 6. Fruit in longitudinal section showing the seed, endosperm, and embryo.

Juncus homalocaulis, *F. v. M.*

JUNCUS HOMALOCAULIS, F. v. M.

WIRY OR TUFTED RUSH* (JUNCACEÆ).

A full technical description is given in Bentham's *Flora Australiensis*, VII. p. 128 ; see also Mueller's *Fragmenta* IX., p. 78, and *Linnæa* XXVI., p. 245.

Some confusion has existed between this species and *J. revolutus*, R. Br., and *J. Brownii*, F. v. M.

Bentham, under *J. homalocaulis*, states that this species is united by F. Mueller with *J. revolutus*, under the name of *J. Brownii*, F. v. M. Mueller, however, in the last *Census* retained both *J. homalocaulis* and *J. Brownii*, F. v. M., as distinct species, but as the latter name is then merely synonymous to *J. revolutus*, which is the older name, it must be dropped, thus following Bentham, though on different grounds.

Apart from the less spicate or clustered and more cymose inflorescence of *J. revolutus*, its usually well developed rhizomic stem is a very distinctive feature. The stem of *J. homalocaulis* is tufted, occasionally extending horizontally to a slight extent. The two plants on the left of the figure represent the extreme development towards a creeping rhizome. In addition, the petals and sepals are much more pointed than in *J. revolutus*, R. Br. The latter is figured in the *Key to Victorian Plants*, I., Fig. 123, under the name of *J. Brownii*, F. v. M. Both species occur in the south and south-west of Victoria. Neither has any known economic value.

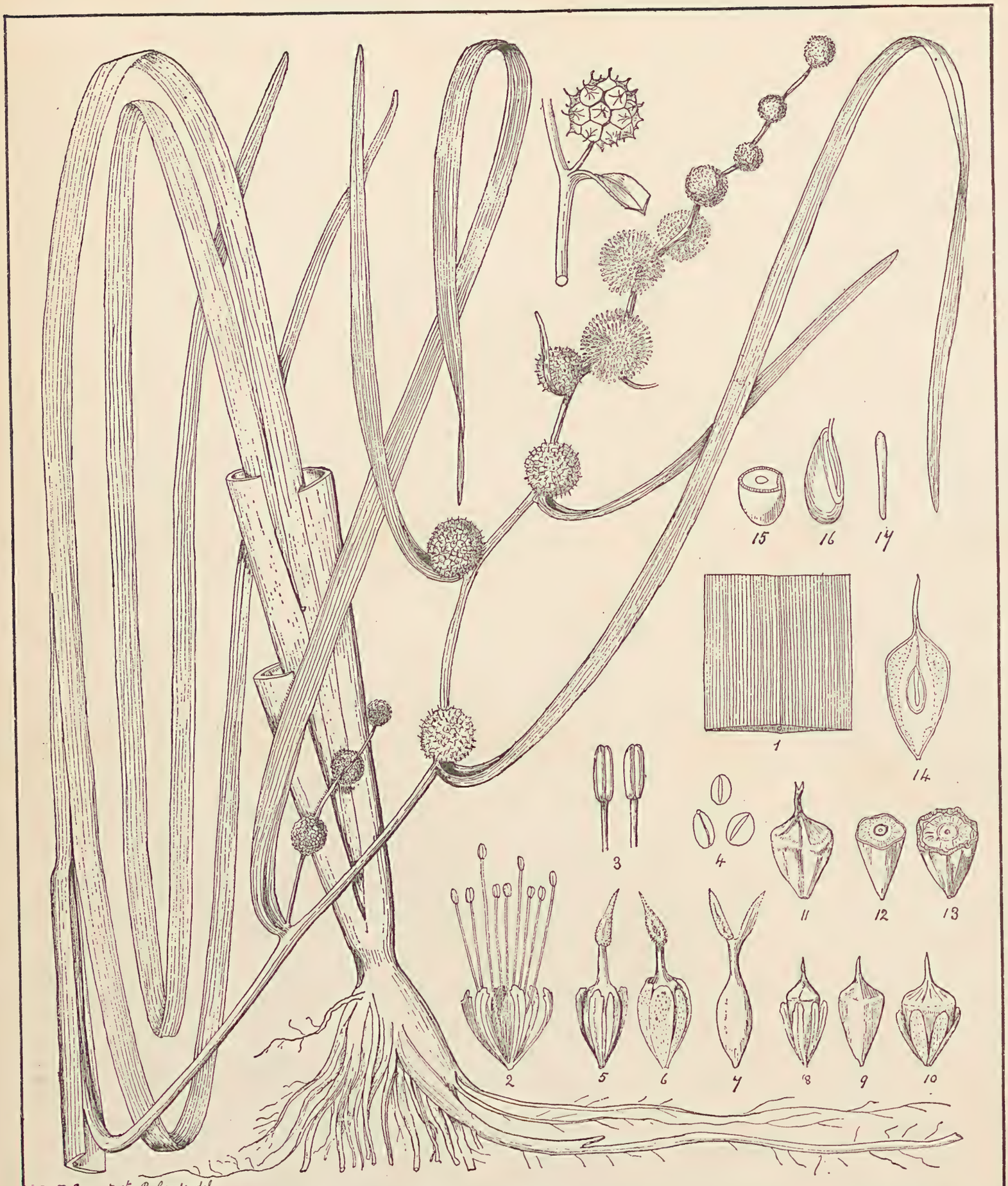
* The name "Wiry Rush" has been adopted for this plant by the Plant Names Committee, and the name "Tufted Rush" has been reserved for *Juncus cæspititius*.

PLATE LXXXVI.

JUNCUS HOMALOCAULIS, F. v. M.

WIRY RUSH.

1. Young flower; 2. Flower opened, perianth removed in front; 3. Flower fully expanded, from above; 4. Stamens; 5. Fruit; 6. Fruit in vertical section; 7. Seed; 8. Seed in vertical section, showing embryo and endosperm.



Sparganium stenophyllum, *Max.*

SPARGANIUM STENOPHYLLUM, Maxim. (S. ANGUSTIFOLIUM, R. Br. S. ANTIPODUM, Graebner).

Bur-reed (Typhaceæ.)

The name of *Sparganium angustifolium* was given originally to an American plant (1803). The Australian plant was named *S. angustifolium* by R. Br. in 1810, who considered his species to be the same as that of Michaux, and therefore did not describe it as a new one. Bentham wrongly referred the Australian plant to *S. angustifolium*, R. Br., which error gave rise to a new name of *S. antipodum*, Graebner, in 1899. Dr. W. Rothert has, however, shown that the Australian species is the same as *S. stenophyllum*, Maxim. (*Bull. Soc. Nat. de Moscow*, 1889) a native of Manchuria, Japan, China, and Burmah. According to Dr. Rothert, *S. ramosum* also occurs in Australia, and possibly other species of this variable genus may still be found to occur in the interior or in North Australia.

To avoid confusion Bentham's technical description of this species is given beneath:—

Stems from a shortly creeping rhizome, erect, not very stout, 1 to 2 feet high, or rarely more. Lower and radical leaves very long, mostly 1 to 2 lines broad, the midrib acutely prominent underneath, the lower portion expanding into long many-nerved, rather narrow sheaths. Inflorescence simple, or with one short branch in the axil of the uppermost leaf with leafy bracts under several of the lower heads. Heads few or numerous, all sessile, or the lowest one pedunculate. Filaments of the males about twice as long as the scales. Ovaries in the females tapering in a thick style, with the stigma decurrent about half-way down. Fruits sessile or nearly so, broadly obovoid, very obtuse, mucronate with the persistent remains of the style.

The plant has no special economic value; hungry stock will eat it when within reach, but it only occurs in lakes, rivers, backwaters, or swampy places.

PLATE LXXXVII.

SPARGANIUM STENOPHYLLUM, Maxim. (S. ANGUSTIFOLIUM, R. Br., S. ANTIPODUM, Graebner.)

Bur-reed.

1. Portion of leaf; 2. Male flower; 3. Stamens; 4. Pollen grains; 5 and 6. Female flower; 7. Carpel, with two stigmas; 8 and 9. Young fruits, with and without perianth segments; 10 and 11. The same fully ripe; 12 and 13. Fruits in transverse section; 14. Fruit in longitudinal section; 15. Seed in transverse section; 16. Entire seed; 17. Embryo.

T. Schoenfeld del. & lith.
F. Mueller direxit
H.C.De Gruchy & Co. imp.

Exocarpos spartea, *R. Br.*

EXOCARPUS SPARTEA, R. Br.

Broom Ballart (Santalaceæ).

R. Br., *Prodromus Novæ Hollandiæ*, p. 356 ; Bentham's *Flora Australiensis*, VI., p. 228. The plant was at one time named *E. pendula* by Mueller, who adopted the spelling "Exocarpos" for the genus in the *Census* and in the present plate, which is not now recognised. In the Baron's *Key*, 2, p. 27, the spelling is varied to "Exacarpos." The plant is a shrub or small tree. Usually the trunk is too small to yield any timber, except perhaps for cabinet work purposes.

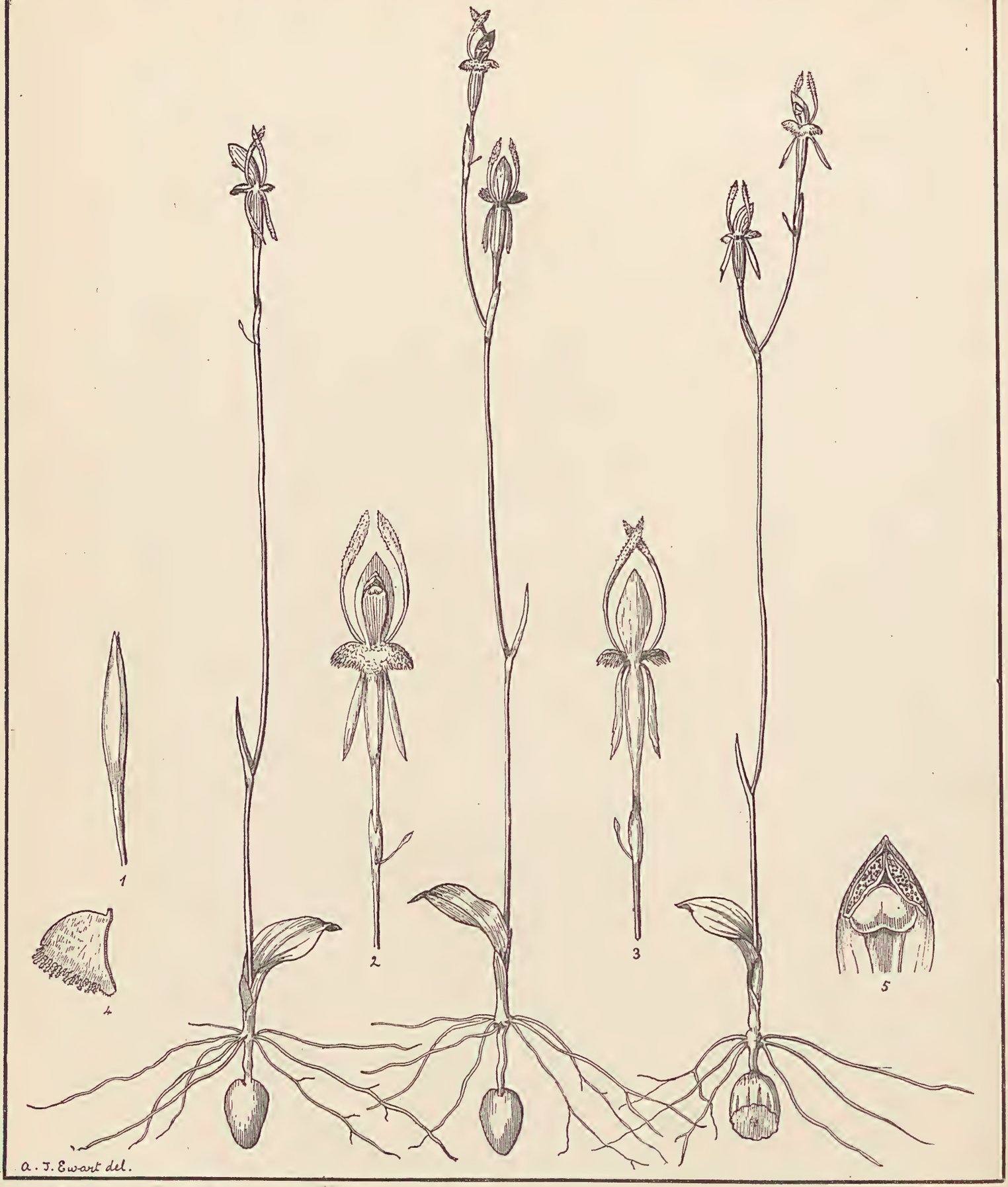
The plant occurs in every State of the Commonwealth, excepting Tasmania, but in Victoria is restricted to the North-Western District.

PLATE LXXXVIII.

EXOCARPUS SPARTEA, R. Br.

Broom Ballart.

1. Flowering branch ; 2. Flower from above ; 3. From side ; 4. Typical four-merous flower from beneath ; 5. Anthers ; 6. Pollen grains ; 7. Top of ovary ; 8. Fruit ; 9. Fruit in vertical section ; 10. Fruit in transverse section below embryo ; 11. Embryo.



Caladenia fimbriata, *Reich.*

CALADENIA FIMBRIATA, Reich.

Fringed Caladenia (Orchidaceæ).

The plant was originally found in West Australia, but has also been recorded from South Australia and Victoria.

It was first named *Leptoceras fimbriata* by Lindley (*Swan River Appendix*), which name is retained in Fitzgerald's *Orchids*. Mueller placed it under *Eriochilus* (*Census*, and *Fragmenta*, XI., 104), but its nearest affinity is undoubtedly to *Caladenia Menziesii*, R. Br. Reichenbach, and also Bentham, placed the plant under *Caladenia* (Bentham's *Flora Australiensis*, VI., 379). Under this genus a considerable range of structure is shown, so that the absence of calli from the labellum is not a decisive factor in this case.

This orchid has not come into regular cultivation, and, in fact, has little or no decorative value as compared with the more showy forms. As in other species of *Caladenia*, the underground tubers are edible, but are too small and difficult to collect to be of any economic value.

In the *Kew Index*, both *Eriochilus fimbriata*, F. v. M., and *Caladenia fimbriata* Reich., are given as valid species.

PLATE LXXXIX.

CALADENIA FIMBRIATA, Reich.

Fringed Caladenia.

1. Flower bud; 2. Open flower, face view; 3. Back view of flower; 5. Face view of apex of column; 4. Lateral portion of labellum showing fringed edge.

F. Schonfeld del & lith. F. Mueller direxit. De Gruchy & Cie imp.

Trema aspera as

Sponia aspera, Decaisne

SPONIA ASPERA, Decaisne = TREMA ASPERA, Blume.

Rough Hemp Nettle,* Kurrajong, Peach-leaved Poison Bush (Ulmaceæ).

Bentham's *Flora Australiensis*, VI., p. 158. The plant has also been known as *Celtis aspera*, Brong., and *Sponia aspera*, Decaisne, while Mueller united it with *Trema cannabina*, Loureiro, in his last *Census*. Until, however, it is certain whether or not *T. cannabina* is itself synonymous with *T. amboinensis*, Blume, a change of name is inadvisable. In the *Fragmenta*, VIII., p. 247, Mueller states that the plant (*Trema cannabina*) is illustrated under Plate XC. in *Plants Indigenous to the Colony of Victoria*. The name is given, however, on the plate as *Sponia aspera*, Lour. Mueller states that the leaves are poisonous. No poisonous principle has been extracted, however. Their rough character and the tough fibre they contain would make them very indigestible, and perhaps mechanically injurious to starved stock driven by hunger to devour them.

The wood is of use for charcoal. The plant, though usually little more than a shrub, may attain a height of 50 feet, and then yields a hard tough durable timber. It occurs in the east of Australia from Victoria to Queensland, in Victoria being confined to the Eastern District.

Bentham and Hooker placed the genus under the *Urticaceæ*, but it seems best to follow Engler and place it under the *Ulmaceæ*, with which its affinities better agree.

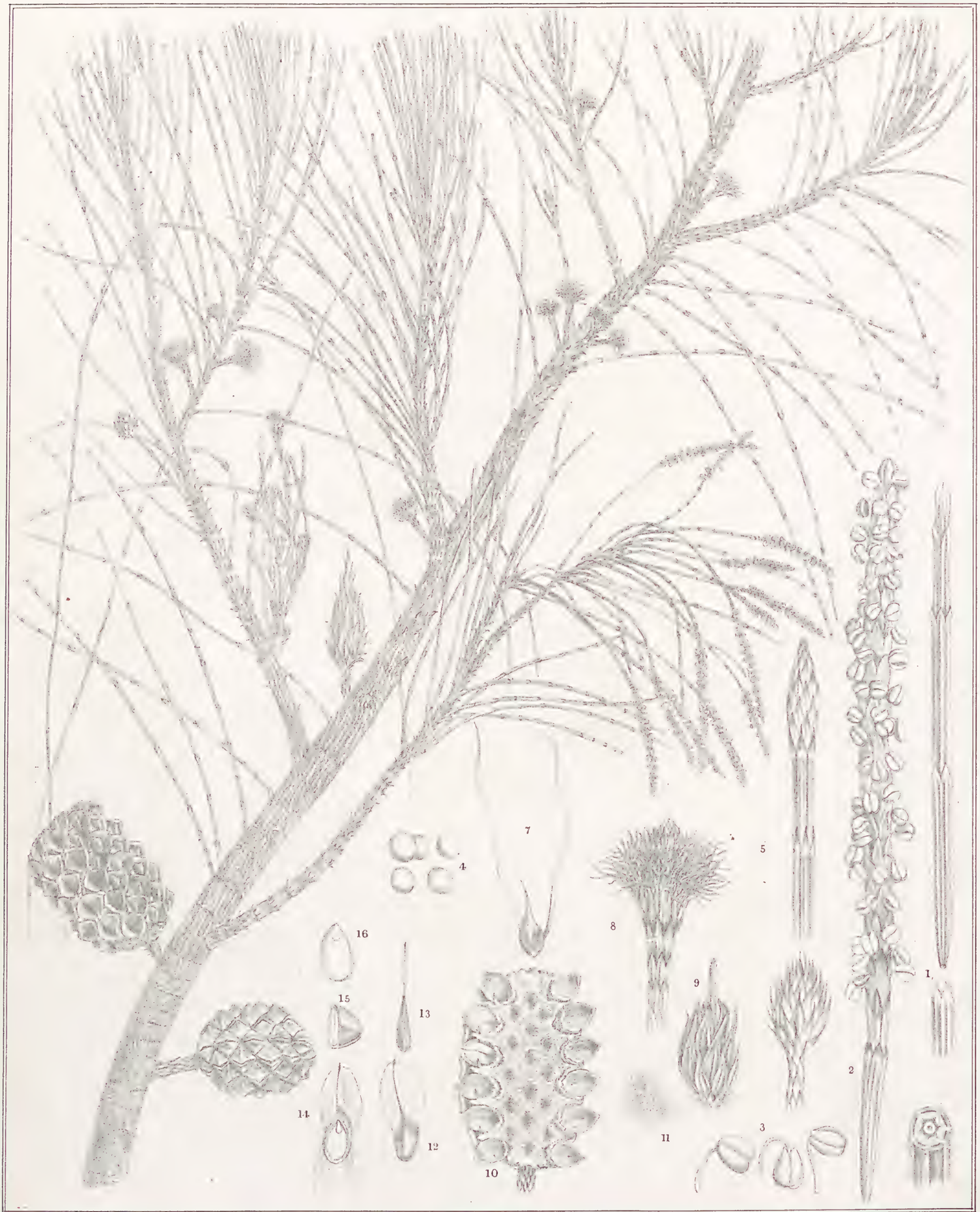
* Adopted as the popular name by the Plant Names Committee.

PLATE XC.

TREMA ASPERA, Blume. (SPONIA ASPERA, Decaisne.)

Rough Hemp Nettle.

1. Hairs ; 2. Unopened flowers ; 3. Portion of inflorescence with fruit on left, buds at centre, and an opened male flower on the right ; 4. Opened hermaphrodite flower from above, and 5. The same from beneath ; 6. A male flower after the stamens have fallen ; 7. Anthers ; 8. Pollen grains ; 9. Young ovary ; 10. Ovary after fertilization ; 11. Attached, and 12. Fallen fruit ; 13. Transverse section of fruit ; 14. Embryo.



F. Schoenfeld del & lith. F Mueller direxit. H.G.DeGruchy & Co imp

Casuarina leptoclada *Mig.*

CASUARINA SUBEROSA, Otto and Dietr.

Buloke* or Black Sheoke (Casuarineæ).

The plant has also been called *C. leptoclada* by Miquel (the name given on the plate), and was at one time termed *C. mæsta* by Mueller. Bentham's *Flora Australiensis*, VI., p. 197.

The plant is a tree 30 or 40 feet high, growing in all the eastern States, including South Australia. It may occur on hillsides, or by rivers and swamps, and hence has occasionally been called Swamp Oak. It is spread over the whole of Victoria with the exception of the extreme north-west.

In times of drought its branches are often cut off by graziers who have no stored fodder, and are used as fodder for starving stock. The "leaves" are, however, somewhat harsh, not very nutritious, and altogether a poor substitute for stored hay or silage. The astringent bark has not only been used for tanning, but also for medicinal purposes. The wood is fairly tough, and hence is useful for tool handles. Its grain gives it value for cabinet work, though apt to crack unless carefully seasoned.

* Adopted by the Plant Names Committee.

PLATE XCI.

CASUARINA SUBEROSA, Otto and Dietr. (C. LEPTOCLADA, Miq.)

Buloke.

1. Branchlets with leaf teeth, and the same in transverse section; 2. Male inflorescence; 3. Anthers; 4. Pollen grains; 5. Branchlet with young female inflorescence; 6. (Beneath) the same, older; 7. Single female flower with styles and subtending bract; 8. Inflorescence of female flowers; 9. After pollination; 10. Infructescence in vertical section; 11. Fibres from same; 12. Single winged fruit in face view, and 13. Side view; 14. The same with fruit in vertical section, and 15. Transverse section; 16. Embryo.

F. Schönfeld del & lith.

F. Mueller, direxit.

H.G. DeGruchy & C.ts. Lith.

Podocarpus alpina. *R. Br.*

PODOCARPUS ALPINA, R. Br.

Alpine Podocarp (Gymnospermæ).

In the last *Census* (1889, p. 184), Mueller changed the name to *Nageia alpina* F. v. M., reviving Gaertner's old genus of Nageia, which, as it also included two species of *Myrica*, is hardly tenable as a generic entity. The plant has also been described as *P. Lawrencii*, Hook. See Bentham's *Flora Australiensis*, VI., p. 248.

It is a shrub rarely more than 10 feet high, and found usually at elevations of 3,000 to 4,000 feet in Victoria, Tasmania, and New South Wales. In Victoria it is confined to the North-Eastern District, and is the only Victorian representative of the genus.

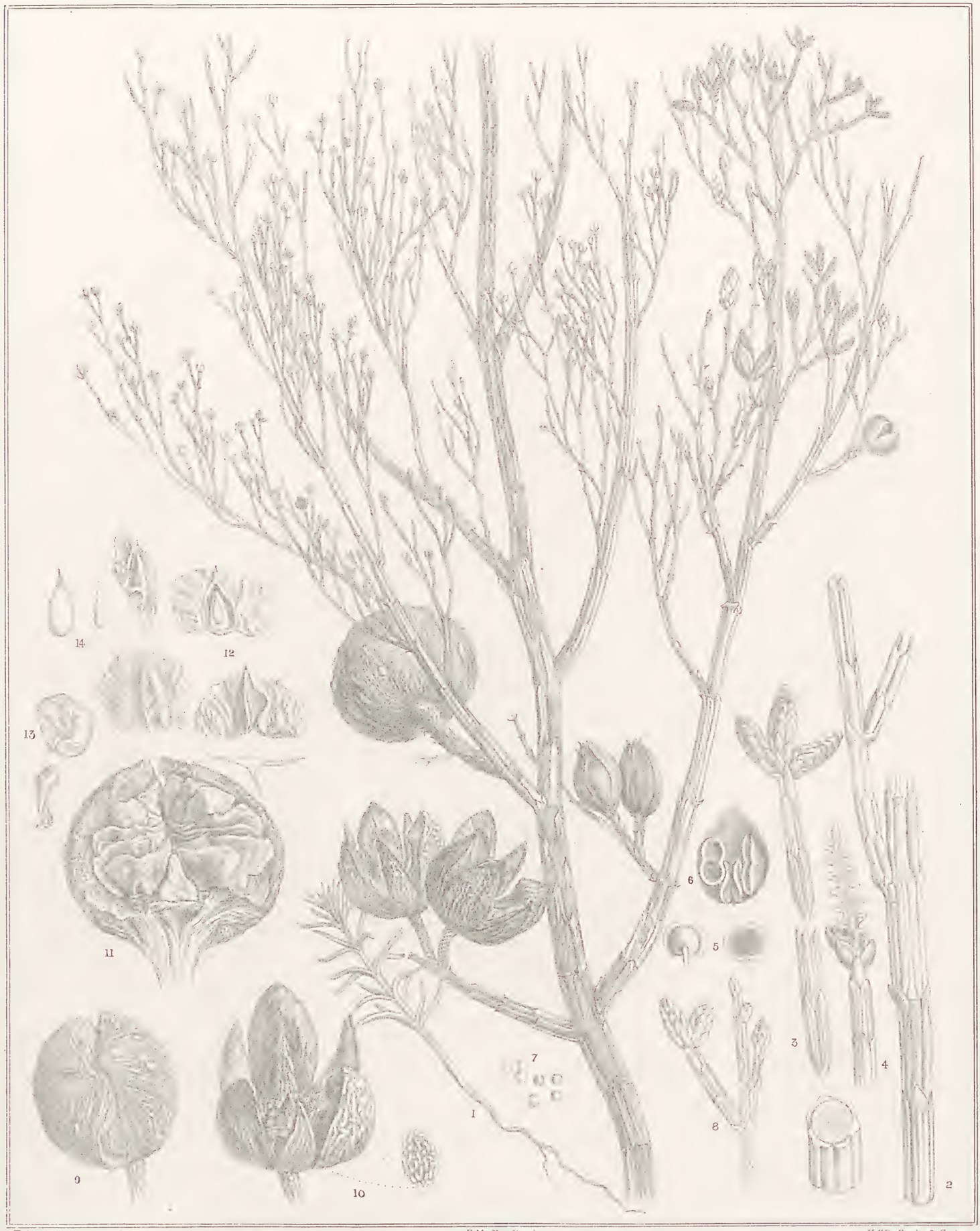
It does not appear to have any recognised economic value, but is of considerable scientific interest from the point of view of distribution, since it affords evidence not only of a former land connexion with Tasmania, but also of a past glacial age in South-Eastern Australia.

PLATE XCII.

PODOCARPUS ALPINA, R. Br.

Alpine Podocarp.

1. Male inflorescence; 2. Stamens; 3. Pollen; 4. Carpel; 5. Fruit; 6. Seed; 7. Fruit in vertical; and 8, in transverse section; 9, Embryo, with suspensor.



F. Schoenfeld del & lith. F. Mueller direxit. H.G.D.s Gruchy & Co. imp

Callitris glauca as **Callitris verrucosa** *R. Br.*

CALLITRIS VERRUCOSA, R. Br. = C. ROBUSTA, R. Br. (var. Verrucosa).

Murray Pine or Marong (Coniferæ).

The genus was placed under *Frenela* in Bentham's *Flora Australiensis*, VI., p. 236, and under *Octoclinis* by Mueller. Botanists are now agreed to include these names under the larger entity "*Callitris*." Mueller maintained *C. verrucosa* as a separate species in the last *Census*, although Bentham had shown that it, as well as *C. propinqua*, *C. glauca*, *C. Preissii*, *F. crassivalvis*, *F. canescens*, and *F. Gulielmi*, were merely varieties of this highly variable species. *C. columellaris*, F. v. M., and *C. Morrisoni*, R. T. Baker, can equally well be classed as varieties of the same species. The tree yields a resin which can be used as a substitute for sandarach, and the dark durable wood, with its camphor-like odour, can be used for cabinet work, and for posts and poles where available in abundance.

PLATE XCIII.

CALLITRIS ROBUSTA, R. Br. var. Verrucosa (Syn. C. VERRUCOSA, R. Br.).

Murray Pine or Marong.

1. Seedling, with four cotyledons at base (two is more common); 2. Branchlet with scale leaves; 3. Two segments of the same with transverse section below, and above unopened male inflorescences; 4. The same after flowering; 5. Stamens dissected off, front and back view; 6. Single scale of male cone, showing stamens from beneath; 7. Pollen grains; 8. Shoot, with young buds, female cone unopened; 10. The same open; 11. Cut in section; 12. Winged seeds; 13. Oblique and side view of same; 14. Face and side view of seed, with envelopes removed.

Crinum flaccidum, *Herbert.*

CRINUM FLACCIDUM, Herbert.

Murray Lily (Amaryllidaceæ).

The plant was first described in Edwards' *Botanical Register*, Plate 426, 1819, as *Amaryllis australasica*. Herbert, on separating *Crinum* from *Amaryllis*, unwarrantably changed the specific name at the same time from "*australasica*" to "*flaccidum*," but as the latter name has been generally accepted, there is no need to manufacture trouble by reverting to the older specific name. Herbert gives a second figure of the plant, differing in some respects from the first one. In Bentham's *Flora Australiensis*, VI., p. 454, the plant is still given as with a limited geographical range. It is now known to be native to every part of the Commonwealth excepting Tasmania, but does not grow wild outside Australia. In Victoria it is confined to the North-Western District. Its flowers are large, white, and strongly scented, and hence it is often grown in gardens as a bulbous decorative plant.

The plant varies a good deal in size, in the number of flowers in the inflorescence, and in the size of the flowers. The perianth segments may vary from one to three inches in length. The papery bracts at the base of the inflorescence are usually relatively small (as shown on the right of the figure of the inflorescence) and are of equal size. Occasionally one may be larger and more leaf-like, as shown on the left. The stigma is usually small and three lobed. The appearance shown in Figure 3 is, as in the preceding case, possibly an abnormality due to cultivation, and does not often occur.

Apart from its decorative uses, the plant has no known economic value. The expressed sap of other species, however, particularly that from the tubers, is used to produce vomiting. In excess, it appears to be poisonous, but no definite tests have been performed with the present species.

PLATE XCIV.

CRINUM FLACCIDUM, Herbert.

Murray Lily.

1. Anthers; 2. Pollen grains; 3. Abnormal stigma; 4. Vertical section of ovary; 5. Transverse section of ovary; 6 and 7. Germinating seed; 8 and 9. Sections of seed showing embryo and endosperm. (The open flower is shown with the perianth segments spread apart.)

Smilax australis, *R. Br.*

SMILAX AUSTRALIS. R. Br.

Australian Sarsaparilla (Liliaceæ).

A full description of the plant is given in Bentham's *Flora Australiensis*, VII., p. 7. The filaments are much longer than the anthers (2–4 times) instead of "rather longer." Additional details are given in Mueller's *Fragmenta*, VII., p. 78, also in the *Key*, I., p. 426. The species is distinguished from the Chinese Smilax (*S. China*), which it resembles externally, by having only a single seed in each compartment of the ovary instead of two. The species is closely allied to *S. zeylanica*, L., and *S. macrophylla* (ovalifolia) Roxb., but is generally accepted as distinct from these. The Australian specimens show a considerable variation in the size and, to some extent, in the shape of the leaves, but the venation is always strongly marked.

The genus is characteristically a tropical one, but this species is found along the whole of the east coast of Australia, as far north as North Australia and as far south as Gippsland. In Victoria, it is confined to the east, and affords a good instance of a semi-tropical plant which extends into cooler regions or elevations along the coast or up gullies, often to a considerable elevation above sea-level. The moist conditions compensate the plant for the lower average temperature. As in many plants with unisexual flowers, the female flower sometimes bears filaments without anthers, and the male flower an undeveloped ovary.

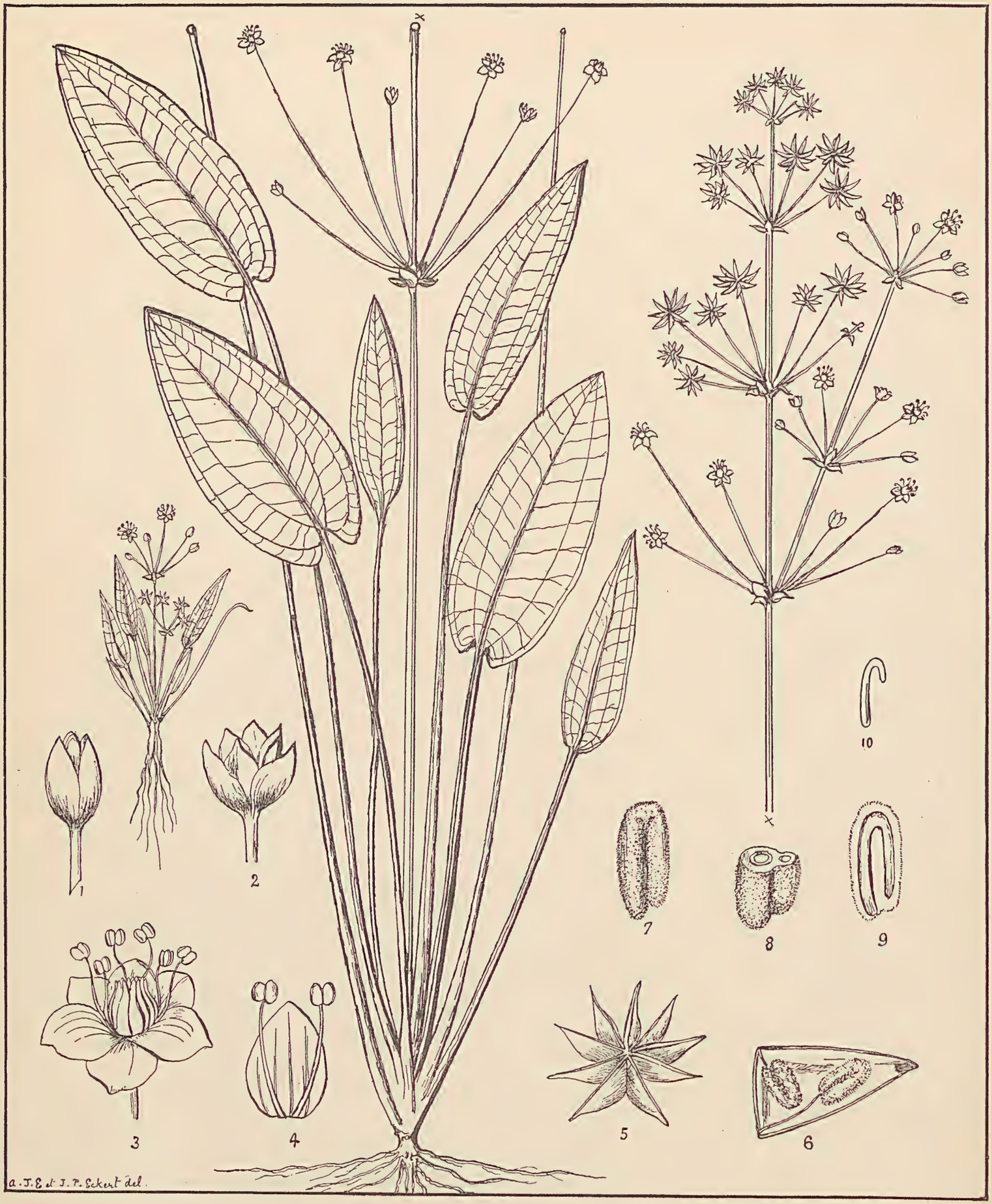
The genus includes the true Sarsaparillas, natives of Central and South America, whose roots are used medicinally. They contain the active principle *Parillin*, valued as a specific for syphilis. No special economic value attaches at present to the Australian species so far as is known.

PLATE XCV.

SMILAX AUSTRALIS, R. Br.

Australian Sarsaparilla.

1. Flower bud; 2. Open male flower; 3. Stamens; 4. Pollen grains; 5. Open female flower; 6. Ripening fruit; 7. Fruit in transverse section; 8. The same in longitudinal section; 9. Seeds; 10. The same, in side view.



Damasonium australe, *Salisbury.*

DAMASONIUM AUSTRALE, Salisbury.

Star-fruit or Australian Damasonium (Alismaceæ).

The plant was first named *Actinocarpus minor* by R. Brown, *Prodromus Novæ Hollandiæ*, 1810, p. 343; then *Alisma minus* by Sprengel (*Syst.* 11, p. 163). It was referred to the genus *Damasonium* as *D. australe* by Salisbury in 1812 (*Kunth's Enum.* III., p. 155). Buchenau has revived the first specific name as *D. minus* (R. Br.), Buchenau; but Salisbury's name has been accepted for a century, and is too widely known to be altered except for sound taxonomic reasons.

The species is found over the whole of Australia, including Tasmania, and is an endemic one. Only three valid species of the genus are known, two from the northern hemisphere (Europe and Mediterranean), and one from Australia. No species are known from America (unless *Alisma californica* is included under *Damasonium*), and none occur in the tropics or in New Zealand. A satisfactory explanation of this peculiar distribution is not at present known, although similar peculiarities occur in the distribution of other fresh-water plants. In Victoria the plant is found in various rivers, lakes, &c., in the north-west, south, and north-east.

Full descriptions are given in Bentham's *Flora Australiensis*, VII., p. 186; in De Candolle's *Monographia Phanerogamarum*, vol. III., 1881, p. 43, and in Engler's *Pflanzen-Reich*, vol. IV., No. 15, p. 20.

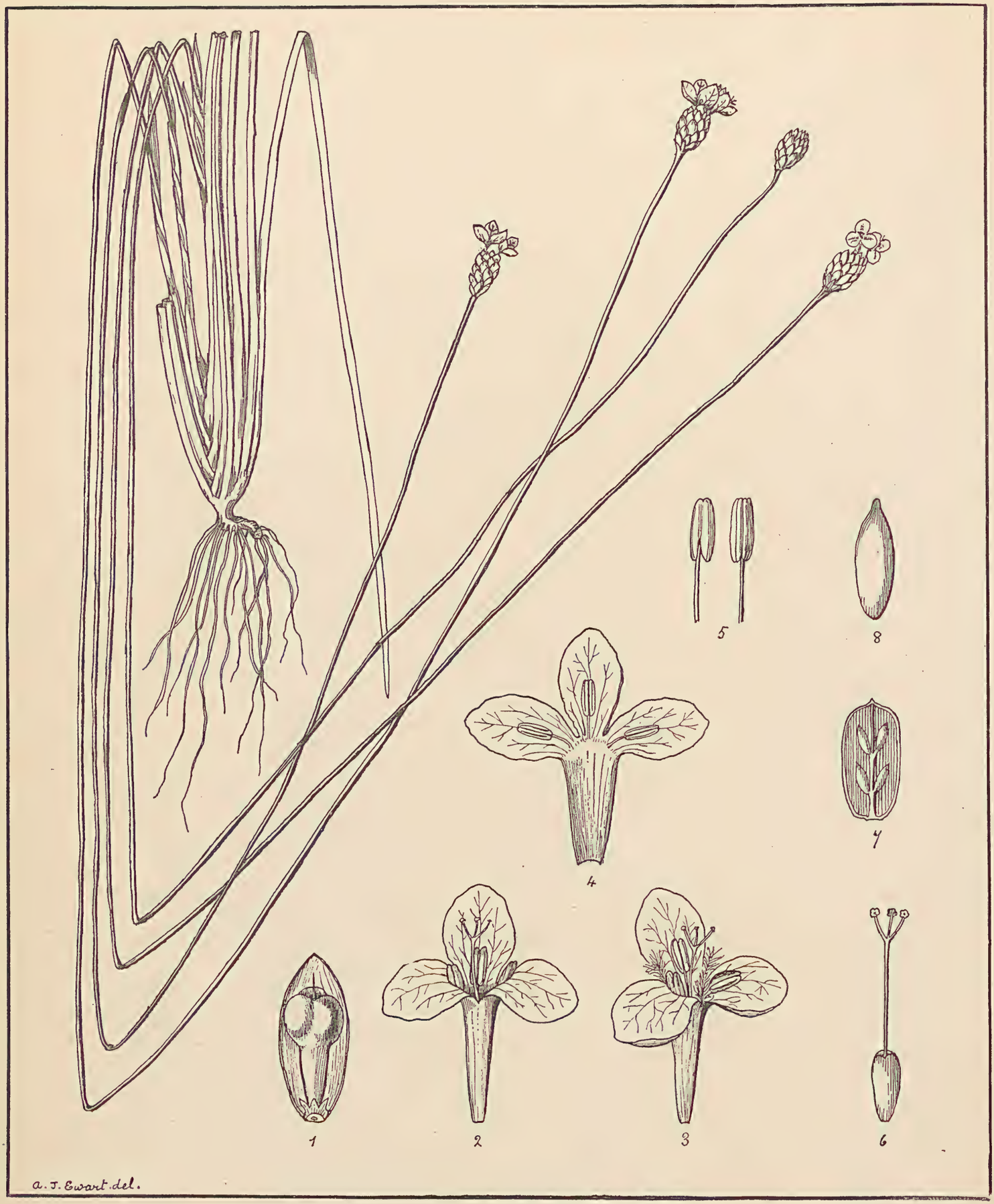
The plant has no economic value. Stock will eat the leaves when they are within reach. The plant is not poisonous, but is not specially nutritious.

PLATE XCVI.

DAMASONIUM AUSTRALE, Salisbury.

Star-fruit or Australian Damasonium.

1. Flower bud; 2. Opening flower; 3. Flower fully expanded; 4. Perianth, segment, and stamens; 5. Fruit; 6. Single carpel (loculus) of fruit opened; 7. Seed; 8. Seed in transverse section; 9. Seed in vertical section; 10. Embryo.



X. operculata, as "Xyris gracilis," *R. Br.*

XYRIS GRACILIS, R. Br.

Slender Flowering Rush (Xyrideæ).

The plant is found in all the eastern States, including South Australia. The New South Wales specimens were made a separate species by R. Brown (*Prodromus Novæ Hollandiæ*), but included by Bentham under *X. gracilis*. The Victorian specimens are closer to the type form, and only one other species (*X. operculata*) is recorded from Victoria. The genus is absent from Europe, but is well represented in America, and future investigations may show the synonymy of some of the Australian and non-Australian species. A full description of this species is given in Bentham's *Flora Australiensis*, VII., p. 79, and some additional details in Mueller's *Fragmenta*, VIII., p. 204.

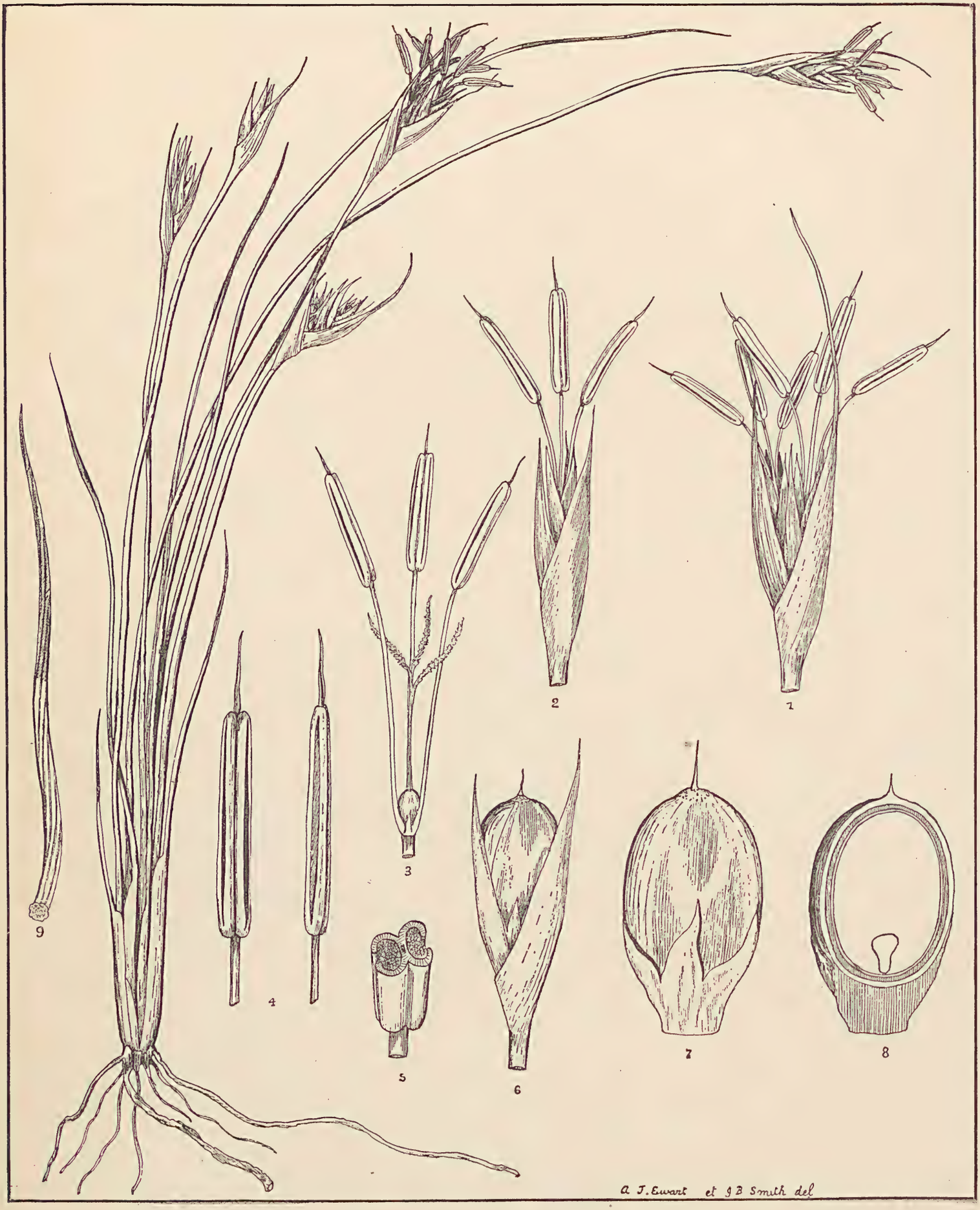
The plant has no known economic value, but certain species are recorded as being used for particular skin diseases in America and the East Indies.

PLATE XCVII.

XYRIS GRACILIS, R. Br.

Slender Flowering Rush,

1. Flower bud in axil of bract; 2 and 3. Expanded flower, showing stamens and stigma; 4. Corolla opened with epipetalous stamens; 5. Stamens; 6. Gynæceum; 7. Vertical section of fruit showing young seeds; 8. Seeds.



Lepidosperma carphoides, *Benth.*

LEPIDOSPERMA CARPHOIDES, Benth.

Mueller's Sedge (Cyperaceæ).

The history of this species is interesting. Mueller, in the *Fragmenta*, IX. p. 27 (1875), placed this plant under *L. striatum*, R. Br. All the specimens prior to 1878 labelled in Mueller's handwriting are marked *L. striatum*, excepting one from Lake Alexandrina, South Australia, which is not mentioned by Bentham. Luehmann was apparently aware that the plant was different from *L. striatum*, for the Moyston (Grampians) specimen (Sullivan, 1872) and the Port Lincoln one (Browne, 1874) are both labelled *L. carphoides*, F. v. M., in his handwriting, and are both quoted by Bentham, who supposed that this name had been adopted by Mueller, and credited him with the species. The only published description is, however, that by Bentham in the *Flora Australiensis*, VII., p. 400, 1878. He gives the spikelets as containing one barren and one perfect flower. Large spikelets on strong specimens may, however, contain two perfect flowers. The leaves are usually grooved on the inner side, commonly turn black at the tips, and sometimes have the end twisted as shown in the extreme case depicted in Fig. 9. Externally, the plant is somewhat similar to *L. striatum*, but this is an exclusively western species, larger and coarser, the spikelets in oblong spikes instead of in short dense clusters, and each spikelet with two or three barren flowers.

L. carphoides grows in West Australia, South Australia, and Victoria. In the *Key* it is given as from the south-west only of Victoria, but it also occurs in the north-west. The chief localities are—Glenelg, Portland Bay, Moyston (Grampians), and the sources of the Avoca River.

Unless stock are starving, they usually leave the plant untouched. It has no known economic value. The name Mueller's Sedge might be suggested for common use as an indication of its history.

PLATE XCVIII.

LEPIDOSPERMA CARPHOIDES, Benth.

Mueller's Sedge.

1. Spikelet with two flowers; 2. Spikelet with one fertile flower; 3. Flower with glumes removed; 4. Stamens; 5. Dehiscing stamen cut transversely; 6. Fruit; 7. The same more magnified without the investing glumes, but with the perianth scales at the base; 8. Fruit in section showing seed and embryo; 9. Tip of a twisted leaf.

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